IN THE CLAIMS

Please cancel claims 4, 5 and 16 without prejudice or disclaimer.

Please amend claims 1, 6, 11, 14, 15, 17 and 26, as follows:

Claim 1 (Currently amended): A proton-conducting membrane, comprising a three-dimensionally crosslinked silicon-oxygen structure (A), carbon-containing compound (B), and inorganic acid (C), characterized by ~~wherein~~

a phase-separated structure containing a carbon-containing phase containing at least 80% by volume of the carbon-containing compound (B) and inorganic phase containing at least 80% by volume of the inorganic acid (C), the inorganic phase forming the continuous ion-conducting paths,

wherein said carbon-containing compound (B) is characterized by the skeleton section substituted with hydrogen at the joint with the three-dimensionally crosslinked silicon-oxygen structure (A), satisfying the following relationship:

$(\delta p^2 + \delta h^2)^{1/2} < 7(Mpa)^{1/2}$

wherein, δp and δh are the polarity and hydrogen bond components of the three-component solubility parameter.

Claim 2 (Original): The proton-conducting membrane according to Claim 1, wherein said phase-separated structure is a sea-island structure with the carbon-containing phase as the island and inorganic phase as the sea.

Claim 3 (Original): The proton-conducting membrane according to Claim 1, wherein said phase-separated structure is composed of a carbon-containing phase and inorganic acid phase both in the form of continuous structure.

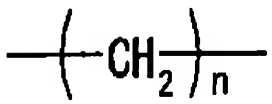
Claim 4 (Canceled).

Claim 5 (Canceled).

Claim 6 (Currently amended): The proton-conducting membrane according to Claim ~~5~~ 1, wherein said carbon-containing compound (B) is bound to the three-dimensionally crosslinked silicon-oxygen structure (A) via 2 or more bonds.

Claim 7 (Original): The proton-conducting membrane according to Claim 6, wherein the skeleton section of said carbon-containing compound (B) is a hydrocarbon consisting of carbon and hydrogen.

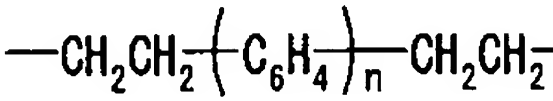
Claim 8 (Original): The proton-conducting membrane according to Claim 7, wherein the skeleton section of said carbon-containing compound (B) has the structure represented by the following formula (1):



··· (1)

wherein, "n" is an integer of 2 to 20.

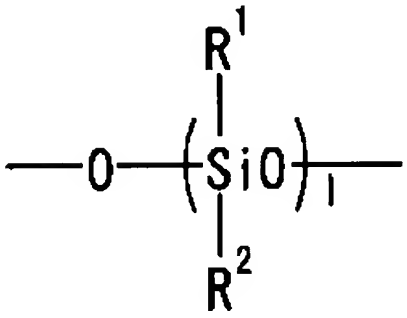
Claim 9 (Original): The proton-conducting membrane according to Claim 7, wherein the skeleton section of said carbon-containing compound (B) has the structure represented by the following formula (2):



··· (2)

wherein, "n" is a natural number of 4 or less.

Claim 10 (Original): The proton-conducting membrane according to Claim 6, wherein the skeleton section of said carbon-containing compound (B) has the structure represented by the following formula (3):



$$\cdots (3)$$

wherein, R^1 and R^2 are each a group selected from the group consisting of CH_3, C_2H_5 and C_6H_5; and "l" is an integer of 2 to 20.

Claim 11 (Currently amended): The proton-conducting membrane according to Claim ~~4~~ 1, wherein said inorganic acid (C) is a heteropoly acid.

Claim 12 (Original): The proton-conducting membrane according to Claim 11, wherein said heteropoly acid is used in the form of being supported beforehand by fine particles of a metallic oxide.

Claim 13 (Previously Presented): The proton-conducting membrane according to Claim 11, wherein said heteropoly acid is a compound selected from the group consisting of tungstophosphoric, molybdophosphoric and tungstosilicic acid.

Claim 14 (Currently amended): The proton-conducting membrane of according to Claim ~~4~~ 1, which contains 10 to 300 parts by weight of the inorganic acid (C) per 100 parts by weight of the three-dimensionally crosslinked silicon-oxygen structure (A) and carbon-containing compound (B) totaled.

Claim 15 (Currently amended): A method for producing the proton-conducting membrane of any one of Claims 1 to 3 comprising a three-dimensionally crosslinked silicon-oxygen structure (A), carbon-containing compound (B) bound to (A) via a covalent bond, and inorganic acid (C),

said method comprising steps of preparing a mixture of a carbon-containing compound (D) having one or more hydrolyzable silyl groups and said inorganic acid (C), forming the above mixture into a film, and hydrolyzing/condensing the hydrolyzable silyl group contained in the mixture formed into the film, to form said three-dimensionally crosslinked silicon-oxygen structure (A),

wherein the skeleton section of said carbon-containing compound having one or more hydrolyzable silyl groups (D) whose hydrolyzable silyl group(s) are substituted by hydrogen satisfies the following relationship:

$(\delta p^2 + \delta h^2)^{1/2} < 7(Mpa)^{1/2}$

wherein, δp and δh are the polarity and hydrogen bond components of the three-component solubility parameter.

Claim 16 (Canceled).

Claim 17 (Currently amended): The method according to Claim ~~16~~ 15 for producing the proton-conducting membrane, wherein said carbon-containing compound (D) having one or more hydrolyzable silyl groups has 2 hydrolyzable groups.

Claim 18 (Original): The method according to Claim 17 for producing the proton-conducting membrane, wherein said carbon-containing compound (D) having one or more hydrolyzable silyl groups is represented by the following formula (4):

$$\left(R^3\right)_{3-m} X_m Si \text{——} R^4 \text{——} SiX_m \left(R^3\right)_{3-m} \quad \cdots (4)$$

wherein, R^3 is a group selected from the group consisting of CH_3, C_2H_5 and C_6H_5; R^4 is a hydrocarbon compound consisting of carbon and hydrogen; X is a group selected from the group consisting of Cl, OCH_3, OC_2H_5 and OC_6H_5; and "m" is a natural number of 3 or less.

Claim 19 (Original): The method according to Claim 18 for producing the proton-conducting membrane, wherein said carbon-containing compound (D) having one or more hydrolyzable silyl groups is represented by the following formula (5):

$$\left(R^3\right)_{3-m}X_mSi-\left(CH_2\right)_n-SiX_m\left(R^3\right)_{3-m} \quad \cdots (5)$$

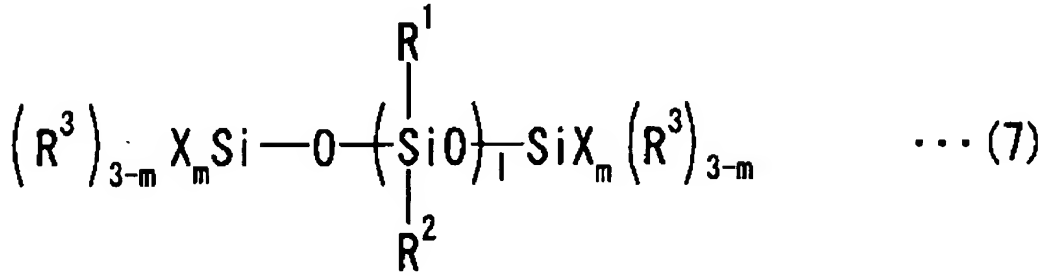
wherein, R^3 is a group selected from the group consisting of CH_3, C_2H_5 and C_6H_5; X is a group selected from the group consisting of Cl, OCH_3, OC_2H_5 and OC_6H_5; "m" is a natural number of 3 or less; and "n" is an integer of 2 to 20.

Claim 20 (Original): The method according to Claim 18 for producing the proton-conducting membrane, wherein said carbon-containing compound (D) having one or more hydrolyzable silyl groups is represented by the following formula (6):

$$\left(R^3\right)_{3-m}X_mSi-CH_2CH_2-\left(C_6H_4\right)_n-CH_2CH_2-SiX_m\left(R^3\right)_{3-m} \quad \cdots (6)$$

wherein, R^3 is a group selected from the group consisting of CH_3, C_2H_5 and C_6H_5; X is a group selected from the group consisting of Cl, OCH_3, OC_2H_5 and OC_6H_5; "m" is a natural number of 3 or less; and "n" is a natural number of 4 or less.

Claim 21 (Original): The method according to Claim 17 for producing the proton-conducting membrane, wherein said carbon-containing compound (D) having one or more hydrolyzable silyl groups is represented by the following formula (7):



$$\left(R^3\right)_{3-m}X_mSi-O-\left(\begin{matrix}R^1\\|\\SiO\\|\\R^2\end{matrix}\right)_l-SiX_m\left(R^3\right)_{3-m} \quad \cdots (7)$$

wherein, R^1, R^2 and R^3 are each a group selected from the group consisting of CH_3, C_2H_5 and C_6H_5; X is a group selected from the group consisting of Cl, OCH_3, OC_2H_5 and OC_6H_5; "m" is a natural number of 3 or less; and "l" is an integer of 2 to 20.

Claim 22 (Original): The method according to Claim 15 for producing the proton-conducting membrane, wherein said step of hydrolyzing/condensing the hydrolyzable silyl group to form said three-dimensionally crosslinked silicon-oxygen structure (A) uses water (E) to be contained in said mixture.

Claim 23 (Original): The method according to Claim 15 for producing the proton-conducting membrane, wherein said step of hydrolyzing/condensing the hydrolyzable silyl group to form said three-dimensionally crosslinked silicon-oxygen structure (A) is effected at 5 to 40°C for 2 hours or more.

Claim 24 (Original): The method according to Claim 15 for producing the proton-conducting membrane, wherein said step of hydrolyzing/condensing the hydrolyzable silyl group to form said three-dimensionally crosslinked silicon-oxygen structure (A) is followed by an aging step effected at 100 to 300°C.

Claim 25 (Original): The method according to Claim 15 for producing the proton-conducting membrane, wherein said step of hydrolyzing/condensing the hydrolyzable silyl group to form said three-dimensionally crosslinked silicon-oxygen structure (A) is followed by a step in which a compound (F) having a hydrolysable silyl group is spread and hydrolyzed/condensed, effected at least once.

Claim 26 (Currently amended): A fuel cell which incorporates the proton-conducting membrane of any one of Claims 1 to 3.